

MODEL : SE-450-24

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1 : 200 mVp-p (Max)	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	V1 : 140 mVp-p (Max)	PASS
2	OUTPUT VOLTAGE ADJUST RANGE	CH1 : 21.6 V ~ 28.5 V	I/P : 230 VAC I/P : 115VAC O/P : MIN LOAD Ta : 25°C	21.145V-28.793V /230Vac 21.146V-28.795V/115VAC	PASS
3	OUTPUT VOLTAGE TOLERANCE	V1 : -1.5 %~ +1.5 % (Max)	I/P : 200VAC / 264 VAC O/P : FULL/ MIN LOAD Ta : 25°C	V1 : -0.13 %~ +0.41 %	PASS
4	LINE REGULATION	V1 : -0.2 %~ +0.2 % (Max)	I/P : 200 VAC ~ 264VAC O/P : FULL LOAD Ta : 25°C	V1 : -0.05 %~+0.025 %	PASS
5	LOAD REGULATION	V1 : -0.5 %~ +0.5 % (Max)	I/P : 230 VAC O/P : FULL -MIN LOAD Ta : 25°C	V1 : -0.103%~+0.153 %	PASS
6	SET UP TIME	230VAC/ 1500 ms (Max) 115VAC/ 1500 ms (Max)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230 VAC/ 85.0 ms 115 VAC/ 66.9 ms	PASS
7	RISE TIME	230VAC/ 50 ms (Max) 115VAC/ 50 ms (Max)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230 VAC/ 5.4 ms 115 VAC/ 5.8 ms	PASS
8	HOLD UP TIME	230VAC/ 16 ms (Typ) 115VAC/ 12 ms (Typ)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 23.2 ms 115 VAC/ 18.1 ms	PASS
9	OVER/UNDERSHOOT TEST	< ±5%	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	TEST : +2.941 % -1.261 %	PASS
10	DYNAMIC LOAD	V1 : 2400 mVp-p	I/P : 230 VAC O/P: (1)FULL /Min LOAD 90%DUTY/1KHZ (2)FULL /Min LOAD 50%DUTY/120HZ Ta : 25°C	(1) 460 mVp-p (2) 700 mVp-p	PASS

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	180 VAC~ 264 VAC	I/P : TESTING O/P : FULL LOAD Ta : 25°C	170 V~ 264 V	PASS
			I/P : LOW-LINE-3V= 177 V HIGH-LINE+15%= 300 V O/P : FULL/MIN LOAD ON : 30 Sec . OFF : 30 Sec 10MIN (AC POWER ON/OFF NO DAMAGE)	TEST : OK	
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE OSC	I/P : 180 VAC ~264 VAC O/P : FULL-MIN LOAD Ta : 25°C	TEST : OK	PASS
3	EFFICIENCY	86 % (Typ)	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	86.7 %	PASS
4	INPUT CURRENT	230 V/ 6 A (Typ) 115 V/ 10 A (Typ)	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I = 3.69 A/ 230VAC I = 6.24 A/ 115VAC	PASS
5	INRUSH CURRENT	230 V/ 55 A (Typ) 115 V/ 35 A (Typ) COLD START	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I = 32.5 A/ 230VAC I = 27.5 A/ 115VAC	PASS

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105%-150% RATED OUTPUT POWER	I/P : 264 VAC I/P : 230 VAC I/P : 200 VAC O/P : TESTING Ta : 25°C	130 %/264VAC 122 %/ 230VAC 117 %/200 VAC Shut down Re-power ON	PASS
2	OVER VOLTAGE PROTECTION	CH1 : 32 V~ 36 V	I/P : 264 VAC I/P : 230 VAC I/P : 180 VAC O/P : MIN LOAD Ta : 25°C	34.8 V/ 264VAC 34.7 V/ 230VAC 34.8 V/ 180VAC Shut down Re-power ON	PASS
3	OVER TEMPERATURE PROTECTION	SPEC : TSW1 : 90±5 °C O.T.P. NO DAMAGE	I/P : 230 VAC O/P : FULL LOAD	O.T.P. Active Shut down o/p voltage , recovers automatically after temperature goes down	PASS
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P : 264 VAC O/P : FULL LOAD Ta : 25°C	NO DAMAGE Shut down Re-power ON	PASS

CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	REMOTE SENSE	S+ / S- >0.3V	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	0.4 V	PASS

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	MODEL : SE-450-24 1. ROOM AMBIENT BURN-IN : 1 HRS I/P : 230VAC O/P : FULL LOAD Ta= 33.6 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta=51.4 °C			PASS
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 115 % LOAD Ta : 25°C	TEST : OK	PASS
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 230 VAC O/P : 115 % LOAD Ta= 40.6 °C	TEST : OK	PASS
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C NO DAMAGE	I/P : 272 VAC O/P : FULL LOAD Ta= 50 °C HUMIDITY= 95 %R.H	TEST : OK	PASS
5	TEMPERATURE COEFFICIENT	± 0.05 % (0-50°C)	I/P : 230 VAC O/P : FULL LOAD	± 0.006 % (0-50°C)	PASS
6	VIBRATION TEST	1 Carton & 1 Set (1) Waveform : Sine Wave (2) Frequency : 10-500Hz (3) Sweep Time : 10min/sweep cycle (4) Acceleration : 2G (5) Test Time : 1 hour in each axis (X.Y.Z) (6) Ta : 25°C		TEST : OK	PASS

M.T.B.F & LIFE CYCLE CALCULATION

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	SE-450-24 : SUPPOSE C 105 IS THE MOST CRITICAL COMPONENT I/P : 230 VAC O/P : FULL LOAD Ta=25 °C LIFE TIME=826569.8 HRS I/P : 230 VAC O/P : FULL LOAD Ta=50 °C LIFE TIME=174966 HRS			PASS
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE : 200K HRS			PASS

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-FG : 1.5 KVAC/min I/P-O/P : 3.0 KVAC/min O/P-FG : 0.5 KVAC/min	I/P-FG : 1.6 KVAC/min I/P-O/P : 3.1 KVAC/min O/P-FG : 0.6 KVAC/min Ta : 25°C	I/P-FG : 5.24 mA I/P-O/P : 6.14 mA O/P-FG : 4.04 mA NO DAMAGE	PASS
2	ISOLATION RESISTANCE	I/P-FG : 500VDC>100MΩ I/P-O/P : 500VDC>100MΩ O/P-FG : 500VDC>100MΩ	I/P-FG : 500 VDC I/P-O/P : 500 VDC O/P-FG : 500 VDC Ta : 25°C	I/P-FG : 1389 MΩ I/P-O/P : 2354 MΩ O/P-FG : 385 MΩ NO DAMAGE	PASS
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	25A / 1min Ta : 25°C	5 mΩ	PASS
4	LEAKAGE CURRENT	< 2.5 mA / 240VAC	I/P : 264 VAC O/P : NO LOAD Ta : 25°C	L-FG : 1.00 mA N-FG : 1.02 mA	PASS

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q 1/2 Rated IRFP460 : 500 V / 20 A	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2)Output Short (3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load 50% Load/ Min. Load 90%Duty/1KHz Ta : 25°C	Q1 Q2 (1) 332 V (1) 452 V (2) 0 V (2) 0 V (3) 320 V (3) 402 V (4) 242 V (4) 366 V	PASS
2	Diode Peak Voltage	D 100 Rated S20LC20U : 200 V 20 A	I/P : High-Line +3V = 267 V O/P : (1)Full Load Turn on (2)Output Short (3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load 50% Load/ Min. Load 90%Duty/1KHz Ta : 25°C	(1) 155 V (2) 0 V (3) 115 V (4) 90 V	PASS
3	Clamp Diode Peak Voltage	D15/16 Rated 31DF6 : 600 V / 3A	I/P : High-Line +3V = 267 V O/P : (1)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (2)Dynamic Load 50% Load/ Min. Load 90%Duty/1KHz Ta : 25°C	D15 D16 (1) 358 V (1) 366 V (2) 364 V (2) 360 V	PASS
4	Control IC Voltage Test	U 1 Rated TL3843P : 30 V	I/P : High-Line +3V =267 V O/P : (1) Output Short (2)O.L.P Ta : 25°C	(1) 9.60 V (2) 9.60 V	PASS

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2008.11.7	RD SAMPLE	PASS	SKY	LIUWY

2003/12/12 A50-F023



450W Single Output Switching Power Supply

SE-450 series
